UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,255	12/20/2000	Christopher Chedgey	10734-003-999	8068

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JONES DAY
222 EAST 41ST STREET
NEW YORK, NY 10017

EXAMINER
KENDALL, CHUCK O

ART UNIT	PAPER NUMBER
2122	7

DATE MAILED: 03/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 December 2003*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Pri rity under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1. This action is in response to the application filed 12/30/03.

2. Claims 1 – 14 have been examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, & 10 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Brotsky et al. USPN 5,490,246.

Regarding claim 1, Brotsky anticipates a software analysis tool (19: 3 – 5) comprising:

means for converting software entities and their relationships into a graph having a structure of nodes interconnected by edges (3:20 – 40, see interconnected nodes and edges, also see & 45 – 55), and an editor comprising means for allowing a user to edit

the graph (3:5 –10 and FIG.3, and associated text), wherein the graph includes a meta node and edge representing a child graph (14:40 – 45).

Regarding claim 10, Brotsky anticipates a software analysis tool substantially as described with reference to Figs. 1 – 18 (Brotsky, FIG.8).

Regarding claim 11, a dependency analysis comprising;

a node class for instantiating node objects in memory representing aspects of an analyzed system as nodes of a graph (17: 5 – 10, shows node class);

a connection class for instantiating connection objects in memory representing dependencies between aspects of an analyzed system (19:45 – 65, see Transducers and class) also see (18:25 – 30, for instances);

an edge class for instantiating edge objects representing collections of one or more connections or edges (17: 12, see graphics operator class).

Regarding claim 12, the dependency analysis system of claim 11, further comprising:

at least one subclass of the node class, the subclass being specific to a particular category of system (19:45 – 55, see meta class and class of node).

Regarding claim 13, Brotsky anticipates, dependency analysis system recorded on a computer-readable medium, comprising: an abstraction layer for providing a uniform interface to third-party analysis tools (Brotsky,19: 35 – 40 see support for raster model and Quick draw);

a graph model data structure for storing dependency information derived through the abstraction layer from third-party tools (Brotsky,19:35 – 40, see support for raster model and Quick draw and see 20:5);

a rendering system for providing a plurality of views of the graph model data structure (Brotsky, Fig.4 see viewer A and E).

Regarding claim 14, Brotsky, anticipates dependency analysis system comprising:

a data structure stored in computer memory representing a hierarchy of graphs (Brotsky, Fig. 13); a rendering system for displaying the hierarchy of graphs (Figs., 4,& 5);

a user interface responsive to a user action indicating a command to expand a displayed node, the user interface causing the rendering system to replace the displayed node with one or more child nodes in response to the user action (Figs.,14, 1440 see user interface, also see 7: 50 – 57).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2, & 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brotsky et al USPN 5,490,246 as applied in claim 1, in view of Guy E. Blelloch Provably Efficient Scheduling for Languages with Fine-Grained Parallelism, Published 1999.

Regarding claim 2, Brotsky discloses all the claimed limitations as applied in claim 1. Brotsky doesn't explicitly disclose bi-directionally folding and unfolding a graph between meta and child levels. However, Blelloch does disclose this feature (Pg,311,5.4.2 see bi-directional and siblings for child levels, also refer to pg. 301, 4.1. for unfolding). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Brotsky and Blelloch, because folding and unfolding operations are a general practice in the graphics field and makes the program more modifiable.

Regarding claims 3, a software analysis tool as claimed in claim 1 or 2, wherein the editor comprises means for automatically generating fresh graph layouts after manipulation (Brotsky, 3:20 – 25).

7. Claims 4 – 9 rejected under 35 U.S.C. 103(a) as being unpatentable over over Brotsky et al USPN 5,490,246 as applied in claim 1 and 2, in view of Guy E. Blelloch, Provably Efficient Scheduling for Languages with Fine-Grained Parallelism, Published 1999 and further in view of Perttunen USPN 6,359,635.

Regarding claim 4, Brotsky as modified discloses all the claimed limitations as disclosed in claim 1 or 2. Neither Brotsky nor Blelloch explicitly discloses wherein the conversion means comprises a plurality of back-ends, each being associated with an aspect of a software system. However, Perttumen discloses a backend (21:58-60 for backend see database). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Brotsky as modified by Blelloch with Perttumen because, it would allow the system to be able to retrieve or store information and hence make it more efficient.

Regarding claim 5, a software analysis tool as claimed in claim 4, wherein each back-end comprises means for converting the entities and the relationships of the associated aspect into nodes and edges of the graph (Brotsky, 3:30 – 45).

Regarding claim 6, a software analysis tool as claimed in claims 4, wherein the back-ends are associated with managers (Brotsky, 21:10 – 15, for manager see user and user selectable and viewing).

Regarding claim 7, a software analysis tool as claimed in claim 6, wherein the managers comprise means for routing commands between the editor and the back-ends (Brotsky, 21:58 – 60 for backend see database and modifying).

Regarding claim 8, a software analysis tool as claimed in claims 6, wherein each manager is associated with a group of back-ends associated with a group of back-ends (Brotsky, 21:58 – 60 for backend see database).

Regarding claim 9, a software analysis tool as claimed in claim 8, wherein the back-ends associated with a particular manager share a common interface and set of operations (Brotsky, 21:10 – 15, see user interface).

R spons to Arguments

8. Applicant's arguments filed 12/30/2003 have been fully considered but they are not persuasive to overcome previous rejection.

Argument (1), Applicant argues in claims 1 & 10 – 14 that Prior art doesn't teach or disclose analyzing software entities, such as Java or C++ code packages. Applicant also argues that Prior art doesn't disclose analyzing the dependency relationship, such as inclusion, association, or inheritance, between components of software or other systems.

Response (1), Applicant argues for unclaimed merits of distinction, therefore argument is moot. There is no limitation in the claims having Java or C++ code packages. Regarding the limitations of analyzing software entities, Brotsky shows this limitation in (19:5 – 9). (19:10 – 18) also discloses pre-analysis.

Regarding analyzing dependency see 19: 45 – 50, where Brotsky discloses, " ...keeping track of their children and their parents so as to produce and output appearance".

Argument (2), Applicant argues in claim 11, that Brotsky doesn't teach "dependency analysis system" as well as a "connection class of instantiating connection objects in memory representing dependencies between aspects of an analyzed system".

Response (2), as set forth above in claim 11, Brotsky, shows a Transducer class (connection class) in (19:45 – 65), as well as instances (instantiation) in (18:25 – 30).

Argument (3), Applicant argues in claim 13, that Brotsky doesn't disclose " a graph model data structure for storing dependency information...".

Response (3), Examiner believes that Brotsky does. In 20:5, Brotsky shows storing children information in slots which is equivalent to Applicant's dependency information as well as in 19:35 – 40, where Brotsky discloses third party software utilizing programs like Quick draw etc.

Argument (4), Applicant argues in claim 14, that Brotsky doesn't disclose " a user interface...causing the rendering system to replace displayed node with one or more child nodes in response to user action".

Response (4), Examiner believes that Brotsky also discloses this functionality. As set forth in claims above and as taught in Brotsky in 7: 50 – 57), Brotsky discloses editing and modifying functions which the user can utilize to add or delete items at anytime.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Correspondence Information

10.   Any inquires concerning this communication or earlier

communications from the examiner should be directed to Chuck O.

Kendall who may be reached via telephone at (703) 308-6608. The

examiner can normally be reached Monday through Friday between 8:00

A.M. and 5:00 P.M. est.

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Tuan Dam can be reached at (703) 305-4552.

Any inquiry of a general nature or relating to the status of this

application or proceeding should be directed to the Group receptionist

whose telephone number is (703) 305-3900.

For facsimile (fax) send to central FAX number 703-872-9306 *and*

703-7467240 draft.

Chuck O. Kendall

Software Engineer Patent Examiner

United States Department of Commerce

TUAN DAM
SUPERVISORY PATENT EXAMINER